BittWare’s IA-840F is an Intel® Agilex™-based FPGA card designed to deliver up to 40% higher performance for data center, networking and edge compute workloads. BittWare maximized I/O features on the card using the Agilex chip’s unique tiling architecture with three QSFP-DDs (3x 200G), PCIe Gen4 x16, and two MCIO PCIe expansion ports for diverse applications. The card also supports Intel oneAPI™, which enables an abstracted development flow for dramatically simplified code re-use across multiple architectures.
Additional Services
Take advantage of BittWare's range of design, integration, and support options

Customization
Additional specification options or accessory boards to meet your exact needs.

Server Integration
Available pre-integrated in our TeraBox servers in a range of configurations.

Application Optimization
Ask about our services to help you port, optimize, and benchmark your application.

Service and Support
BittWare Developer Site provides online documentation and issue tracking.

Board Specifications

| FPGA | • Intel Agilex
|      |   • AGF027 in an R2S81A package
|      |   • Core speed grade -2: I/O speed grade -2
|      |   • Contact BittWare for other Agilex FPGA options
| On-board Flash | • 2Gbit Flash memory for booting FPGA
| External memory | • 2x 288-pin DIMM slots, each supporting up to 32GB (default 16GB) DDR4 SDRAM modules (up to 64GB total)
|      |   • 2x banks on-board DDR4, up to 32GB each
| Host interface | • x16 Gen4 interface direct to FPGA, connected to PCIe hard IP
| QSFP-DD cages | • 3 QSFP-DD cages on front panel connected directly to FPGA via 24 transceivers
|      |   • User programmable low jitter clocking supporting 10/25/40/100GbE
|      |   • Each QSFP-DD can be independently clocked
|      |   • Jitter cleaner for network recovered clocking
|      |   • Multi-rate hard MAC+FEC for 10/25/100GbE (4x HardIP)
|      |   • Fully backward compatible with QSFP28s
| MCIO | • Two x8 connectors supporting 4x Gen4 x4 PCIe root complexes, 2x Gen4 x8 endpoints, or 1x Gen4 x16 root complex or endpoint
| External clocking | • 1 PPS and 10MHz ref clk front panel inputs (optional)
| USB | • USB access to BMC, USB-JTAG, USB-UART

Board Management Controller

• Voltage, current, temperature monitoring
• Power sequencing and reset
• Field upgrades
• FPGA configuration and control
• Clock configuration
• Low bandwidth BMC-FPGA comms with SPI link
• USB 2.0
• PLDM support
• Voltage overrides

Cooling
• Standard: dual-slot passive heatsink
• Optional: triple-slot active heatsink (with fans)
• Optional: dual-slot liquid cooling

Electrical
• On-board power derived from PCIe slot 12V and two AUX connectors
• Power dissipation is application dependent
• Typical max power consumption TBD

Environmental
• Operating temperature: 5°C to 35°C

Quality
• Manufactured to IPC-A-610 Class 2
• RoHS compliant
• CE, FCC and ICES approvals

Form factor
• Standard-height, dual-slot PCIe card
• 4.376 x 10.5 inches (111.15 x 266.7 mm)

Development Tools

System development
BittWare SDK including PCIe driver, libraries, and board monitoring utilities

Application development
Supported design flows - Intel FPGA oneAPI Base Toolkit, Intel High-Level Synthesis (C/C++) and Quartus Prime Pro (HDL, Verilog, VHDL, etc.)

To learn more, visit www.BittWare.com

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